Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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TOPIC: Chest Infections

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A RARE CASE OF INTERNAL JUGULAR VEIN THROMBOSIS AFTER MRNA COVID-19 VACCINE

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INTRODUCTION: SARS-CoV-19 pandemic is a global health emergency and burden. Millions of people worldwide have been affected and cases continue to rise. Health organizations have focused on creating vaccines to combat SARS-CoV-19 and have successfully formulated new vaccines to distribute globally. However, rare blood clots have been reported on patients receiving viral vector vaccines, halting the distribution and restricting the vaccine's use to limited population. BNT162b1/BNT162b2 mRNA vaccines have been introduced to the world and early studies reported no safety profile against thrombotic events [1,3]. We report a rare case of internal jugular vein thrombosis (IJT) occurring who received his first dose of BNT162b2 mRNA vaccine and subsequently developed clot in his internal jugular vein.

CASE PRESENTATION: 38-year-old with history of opioid abuse on suboxone received his first BNT162b2 mRNA vaccine on April 18, 2021. Two days later patient experienced chest pain, dyspnea, left neck swelling and dry cough with odynophagia. Outpatient work up with ultrasonography evaluation revealed a clot and was referred for further evaluation. Carotid US confirmed noncompressible internal jugular vein and CT chest demonstrated left innominate vein thrombus. Laboratory work was notable for elevated PT, PTT, leukocytosis, thrombophilia, elevated LDH and D-Dimer. Intranasal PCR was negative for SARS-CoV-2 and other respiratory viruses. Malignancy workup during hospital admission was negative.

DISCUSSION: mRNA vaccines have been reported as a safe and efficacious new type of vaccine to combat SARS-CoV-19. Until recently, no thrombotic events were reported from any BNT162b1/ BNT162b2 mRNA vaccines [2]. To the best of our knowledge, this is the first case of a rare blood clot seen after the first dose of any mRNA vaccine. Given our patient's symptom onset within 1 week of his first dose with documented thrombus and elevated inflammatory markers and in the absence of comorbid conditions, we hypothesize that BNT162b2 likely triggered an extreme immune inflammatory response culminating in our patient's IJT. Patient only received 1 dose of the vaccine but response to the vaccine varies by individual. Careful monitoring of patients for post-vaccine is appropriate given the lack of long-term safety profile. This report will hopefully provide some insight into a potential complication of the newly developed mRNA vaccine that was not discovered during the initial investigative studies.

CONCLUSIONS: The adenovirus SARS-CoV-2 vaccine recently became associated with pathologic thrombosis and, although rare, thrombosis may also be a complication of the mRNA vaccines. Close monitoring and possible prophylactic treatment may be considered in patients receiving these vaccines who are at high risk for thrombosis.

REFERENCE #1: Polack FP, Thomas SJ, Kitchin N, Absalon J, Gurtman A, Lockhart S, Perez JL, Pérez Marc G, Moreira ED, Zerbini C, Bailey R, Swanson KA, Roychoudhury S, Koury K, Li P, Kalina WV, Cooper D, Frenck RW Jr, Hammitt LL, Türeci Ö, Nell H, Schaefer A, Ünal S, Tresnan DB, Mather S, Dormitzer PR, Sahin U, Jansen KU, Gruber WC; C4591001 Clinical Trial Group. Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine. N Engl J Med. 2020 Dec 31;383(27):2603-2615. doi: 10.1056/NEJMoa2034577. Epub 2020 Dec 10. PMID: 33301246; PMCID: PMC7745181.

REFERENCE #2: Carli G, Nichele I, Ruggeri M, Barra S, Tosetto A. Deep vein thrombosis (DVT) occurring shortly after the second dose of mRNA SARS-CoV-2 vaccine. Intern Emerg Med. 2021;16(3):803-804. doi:10.1007/s11739-021-02685-0

REFERENCE #3: Walsh EE, Frenck RW Jr, Falsey AR, Kitchin N, Absalon J, Gurtman A, Lockhart S, Neuzil K, Mulligan MJ, Bailey R, Swanson KA, Li P, Koury K, Kalina W, Cooper D, Fontes-Garfias C, Shi PY, Türeci Ö, Tompkins KR, Lyke KE, Raabe V, Dormitzer PR, Jansen KU, Sahin U, Gruber WC. Safety and Immunogenicity of Two RNA-Based Covid-19 Vaccine Candidates. N Engl J Med. 2020 Dec 17;383(25):2439-2450. doi: 10.1056/NEJMoa2027906. Epub 2020 Oct 14. PMID: 33053279; PMCID: PMC7583697.

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